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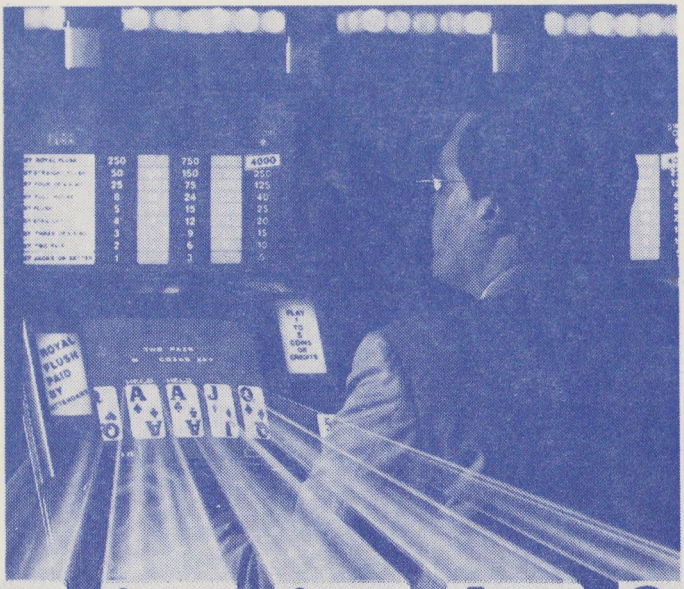
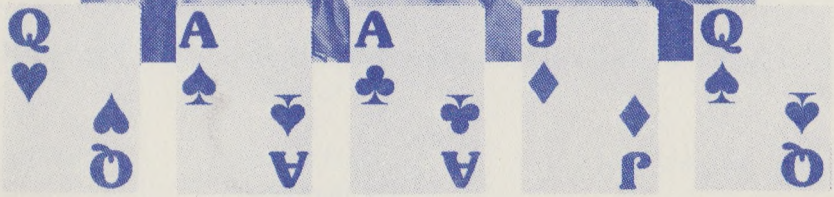
VEGAS VIDEO POKER





Play & Learn to Win SERIES

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THE WINNING HANDS OF VIDEO POKER

HAND	DESCRIPTION	EXAMPLE
1 pair, jacks or better	Two cards of the same rank (J, Q, K, or A)	4♦ 7♥ Q♥ Q♠ A♣
2 pair	Two cards of one rank and two cards of another rank	3♣ 3♦ 8♥ 9♣ 9♠
3 of a kind	Three cards of the same rank	2♦ 6♦ 6♥ 6♣ A♥
Straight *	Five cards in sequence of rank	7♠ 8♥ 9♥ 10♣ J♦
Flush	Five cards of the same suit	2♠ 6♠ 8♠ K♠ A♠
Full house	Three cards of one rank and two cards of another rank	5♥ 5♣ 9♣ 9♦ 9♠
4 of a kind	Four cards of the same rank	6♣ J♥ J♣ J♦ J♠
Straight flush	Five cards of the same suit in order of rank	3♦ 4♦ 5♦ 6♦ 7♦
Royal flush	Straight flush 10 through ace	10♣ J♣ Q♣ K♣ A♣

* An ace can be used in either a low or high card straight; for example:
A♠ 2♥ 3♥ 4♦ 5♣ or 10♦ J♣ Q♠ K♥ A♣

This booklet defines a card of 10 or lower as a "low" card, and a jack or higher as a "high" card. Similarly, a pair of tens or less is a low pair, and a pair of jacks or better is a high pair.

VIDEO POKER STRATEGY

Is there a big difference between five-card draw on a video poker machine and five-card draw at a poker table? The answer is definitely *yes*.

In video poker, you play against a machine with predetermined payoffs for predetermined hands. The payoffs depend on how hard it is to get a winning hand. For example, a two-pair hand *always* pays double your bet. In "live" poker, you play against the other players at the table--so the payoffs depend on how much they are willing to bet. With a two-pair hand against human opponents, you could win either a small pot or a large pot. You could lose to a higher hand, with two pair of higher rank. You could even lose by folding to an effective bluff. Video poker and people poker are two very different games.

What's the difference between playing a video poker machine and playing a slot machine? Both machines have predetermined payoffs but again, there *is* a difference. Slot machines are pure chance. You make a bet, pull the arm, and luck determines the result. Video poker is not just a game of chance, but also a game of skill. You make a bet, the machine deals, and luck determines your initial hand. However, *you* must decide which cards to hold or which to discard before you draw.

Your ability to figure the odds for potential payoffs will influence your choices and your choices will determine the outcome of the hand. Over time, your knowledge of video poker will influence your win/loss ratio. This booklet provides statistical data to help improve your video poker decisions and increase your chances of winning.

A STATISTICAL APPROACH

In this booklet are some examples of hands on which the experts did not agree about what to hold or throw. When the choices were not obvious, the hands were analyzed statistically, in this way.

1. A hand of the description in the example was dealt by the computer.
2 All options were identified and selected, one at a time.
3. The hand was played 25,000 times for each option.
4. The results were reported in terms of the "payback ratio" so they could be compared.

The "payback ratio" is the average return on a bet. To derive it, average the total winnings over the number of hands played. In this booklet, the payback ratio represents the winnings accrued for each option divided by 25,000 hands played.

For example, a payback ratio of 0.6 represents an average return or $.60 on a one-dollar bet, or three dollars on a five-dollar bet. The preferred option is that with the highest payback ratio for each situation. A discussion of the options accompanies each example.

This is not a pure statistical approach. Instead, it simulates actual play. This approach, playing a large number of hands and averaging the results is commonly known as the Law of Large Numbers, or the Monte Carlo Technique.

The computer game Vegas Video Poker lets you choose between two video poker "machines", referred to as "machine A" and "machine B". The payback ratios given are for machine A. The results for machine B were usually within one percent of those for machine A; they are given only when significantly different.

It should also be noted that at the time that the statistics were being derived for this program, the type of payback ratios found here were very representative of the vast majority of the machines in place in the casinos. Since that time, several casinos in various cities have placed video poker machines that have paybacks that could cause you to have to vary the strategy from that presented herein. One example of this being machines that pay back even money for a pair of tens or better, as opposed to jacks. A second example being machines that do not pay back for any hand under two pair. The latter or these examples gives a tremendous edge to the house unless the payoffs for winnings hands are compensated accordingly.

PAYOFF SCHEDULES FOR MACHINE A AND MACHINE B

The following table shows the payoff on a one dollar bet for each winning hand. One pair of jacks or better just gives your your money back. Two pair pays two to one, and so forth.

A	WINNING HANDS	B
	1 PAIR	
1	JACKS OR BETTER	1
2	2 PAIR	2
3	3 OF A KIND	3
4	STRAIGHT	4
5	FLUSH	6
7	FULL HOUSE	9
40	4 OF A KIND	25
100	STRAIGHT FLUSH	75
500	ROYAL FLUSH	400

At the end of the booklet are payback ratios and the list of general rules, derived from statistical data based on sample sizes of 25,000 for each option presented and on the respective payoffs for machine A. The data could vary if based on a strict mathematical approach or on a video poker machine with different odds.

Disclaimer:

The statistics presented in this booklet are the results of the approach described. The authors and publishers of this booklet are not responsible for any variance that may exist between the payback ratios published herein and actual payback ratios during play. Statistics are presented as a source of information to the reader; the reader is responsible for any actions taken based upon this information.

SAMPLE HANDS AND STRATEGIES

INITIAL DEAL: FIRST FIVE CARDS **Payback Ratio: 0.343**

This example illustrates the payback ratio on the initial deal if the initial cards are kept. This payback ratio (.343) means that approximately $.34 would be returned for each dollar bet if no cards were drawn to try to improve the hand.

Remember, the payback ratio is not the percentage of winning hands, but is the average payoff. In this situation, where the initial five cards were kept, the percentage of winning hands was 20.5%. Because most winning hands pay better than even money, the payback ratio will be significantly greater than the percentage of winning hands.

I. FIVE LOW CARDS

Example: 3♦ 4♥ 7♣ 9♠ 10♣

Option:

DISCARD ALL FIVE CARDS **Payback Ratio: 0.374**

Because there are only remote possibilities for a straight or a flush in this hand, the only viable option is to discard all five cards. The payback ratio (0.374) is slightly higher than the payback ratio for the initial draw (0.343), because five low cards have been eliminated from the deck, increasing the probability of a pair of high cards.

In fact, for the 25,000 hands played, the number of high pairs drawn was 20% higher than on the initial deal.

II. FOUR LOW CARDS, ONE HIGH CARD

Example: 2♣ 4♠ 6♥ 9♣ J♠

Options:

DISCARD ALL FIVE CARDS **Payback Ratio: 0.333**

HOLD ONE HIGH CARD: J♠ **Payback Ratio: 0.497**

The best option is to hold the single high card. Starting with one high card increases the probability of drawing a high pair. Discarding the high card along with the low cards decreases the probability of drawing a high pair because it eliminates one of the high cards from the deck.

Notice that discarding all five cards gives a lower payback ratio than the same play in Example I, because fewer high cards remain after the discards in Example II.

III. THREE LOW CARDS, TWO HIGH CARDS

Example: 5♦ 7♥ 8♣ Q♠ K♥

Options:

HOLD ONE HIGH CARD: Q♠ **Payback Ratio: 0.454**

HOLD TWO HIGH CARDS: Q♠ K♥ **Payback Ratio: 0.486**

These ratios indicate that holding two high cards is better than holding only one. The probability for a high pair is increased. You might question the wisdom of giving up a chance of a flush by keeping two cards of different suits, and may be tempted to hold only one of the high cards. But, as you see, the probability for a high pair outweighs the probability for a flush, in this case.

Variation:

If both high cards are of the same suit, the possibility for a flush hand remains. In this case, the payback ratio would increase to 0.588

To discard all five cards is not a reasonable option. As you saw in Example II, the loss of one high card decreased the payback ratio; the loss of two high cards would decrease it further.

IV. TWO LOW CARDS, THREE HIGH CARDS

Example: 6♠ 8♣ J♥ Q♦ K♠

Options:

HOLD ONE HIGH CARD: J♥ **Payback Ratio: 0.442**

HOLD TWO HIGH CARDS: J♥ Q♦ **Payback Ratio: 0.471**

HOLD THREE HIGH CARDS: J♥ Q♦ K♠ **Payback Ratio: 0.474**

The payback ratios for all three options are fairly close. The payback ratio on holding one high card, although only slightly lower, could prove costly over a period of extended play. Holding all three high cards increases the probability of a high pair or straight, but eliminates any chance for a full house or four of a kind. Holding two high cards keeps more options open. As you see, these factors balance each other out and produce payback ratios that are almost identical.

Variation:

If two of the three high cards are of the same suit, then those two cards should be held, and the third discarded. The payback ratio in such a case would increase to 0.544.

If all three high cards are of the same suit, then those three cards should definitely be held. The payback ratio would increase to 1.082.

V. LOW PAIR, ONE HIGH CARD

Example: 6♠ 6♦ 8♣ 10♠ K♥

Options:

HOLD HIGH CARD: K♥ **Payback Ratio: 0.497**

HOLD LOW PAIR: 6♠ 6♦ **Payback Ratio: 0.820**

HOLD PAIR, HIGH CARD: 6♠ 6♦ K♥ **Payback Ratio: 0.675**

The second option, to hold only the low pair, is by far the best choice. Holding the extra high card is of no value. Drawing a second low pair is as good as pairing the high card, because two pair of any rank doubles your wager, and keeping the extra card decreases the possibility ofr three or four of a kind. Although a low pair is not a winning hand, it is a good start toward two pair, three of a kind, a full house, and four of a kind.

Variation:

If the hand dealt contained a low pair and two high cards, the best choice is still to hold the low pair and discard the rest. Holding the two high cards and discarding the pair would yield a payback ratio of only 0.486. Holding the two high cards and the low pair drops the payback ratio to 0.390.

VI. LOW PAIR, HIGH PAIR

Example: 5♦ 5♥ 9♦ Q♠ Q♣

Options:

HOLD HIGH PAIR: Q♠ Q♣ **Payback Ratio: 1.554**

HOLD BOTH PAIR: 5♦ 5♥ Q♠ Q♣ **Payback Ratio: 2.430**

Surprised? Holding just the high pair may seem to be the logical choice. If you take that option, you are assured a return equal to your bet, even if the hand doesn't improve. In addition, you improve the chance of drawing three of a kind and you still have the chance to get four of a kind. However, the payback ratios show that holding both pair is the better option. It is a case of "a bird in the hand is worth two in the bush." Holding the two pair assures a return of double your wager.

Both options leave open the possibility of obtaining a full house. Holding both pair will result in eight times as many full houses as holding the single pair!

VII. FIVE LOW CARDS, THREE TO A STRAIGHT

Example: 2♥ 4♠ 8♠ 9♣ 10♦

Options:

DISCARD ALL FIVE CARDS: **Payback Ratio: 0.374**

HOLD: 8♠ 9♣ 10♦ **Payback Ratio: 0.260**

Choosing to discard all five cards from the initial draw can be a difficult decision, especially when it appears there is a chance for a straight. You may be tempted to build upon what you have, rather than to start from scratch. However, the payback ratios in this example indicate that you should draw five new cards.

Variation:

If you have four of the five low cards in sequence, then you would go for the straight; the probability of getting it is increased and the payback ratio would be 0.684 (see the next example). This payback ratio assumes an open-ended straight, one that can be filled with a card on either end.

VIII. FOUR LOW CARDS TO A STRAIGHT, ONE HIGH CARD

Example: 7♣ 8♥ 9♠ 10♦ A♥

Options:

HOLD HIGH CARD: A♥ **Payback Ratio: 0.497**

HOLD: 7♣ 8♥ 9♠ 10♦ **Payback Ratio: 0.684**

The correct choice is to try to complete the straight. If you feel reluctant, it's understandable, because this option eliminates the possibility of any other winning combination--it's a straight or nothing.

Variation:

If one or more of the four cards in sequence are high cards, the payback ratio increases:

8♦ 9♥ 10♠ J♦ **Payback Ratio: 0.725**

9♠ 10♣ J♥ Q♦ **Payback Ratio: 0.807**

The probability of obtaining a straight has not increased; the additional possibility of obtaining a high pair has increased the payback ratio.

IX. FOUR LOW CARDS TO A STRAIGHT, LOW PAIR

Example: 6♠ 6♦ 7♠ 8♦ 9♥

Options:

HOLD LOW PAIR: 6♠ 6♦ **Payback Ratio: 0.841**

HOLD: 6♦ 7♠ 8♦ 9♥ **Payback Ratio: 0.684**

This example poses a very difficult choice, even for an experienced video poker player. The inclination to go for the straight is reinforced by the fact that the low pair is not a winning hand. The correct choice is to hold the low pair. By going for the straight, you eliminate the possibility of any other winning combination. The low pair provides a good start toward two pair, three of a kind, a full house, or four of a kind. A low pair is not a winning hand, but neither is four cards to a straight.

X. FOUR HIGH CARDS TO A STRAIGHT, HIGH PAIR

Example: 10♣ J♣ Q♦ K♥ K♠

Options:

HOLD HIGH PAIR: K♥ K♠ **Payback Ratio: 1.575**

HOLD: 10♣ J♣ Q♦ K♥ **Payback Ratio: 0.857**

The option to hold the high pair is the correct choice. The pair assures the return of your wager and leaves open the possibility for three of a kind, a full house, or four of a kind. Attempting to complete the straight would mean giving up the sure return in hopes of a straight (or re-pairing one of the high cards).

This is a good example of how decisions vary between video poker and regular draw poker. A player sitting at a poker table of six or more players would probably choose to try for the straight.

XI. TWO LOW CARDS, TEN, JACK, AND QUEEN

Example: 5♥ 7♣ 10♥ J♠ Q♦

Options:

HOLD TWO HIGH CARDS: J♠ Q♦ **Payback Ratio: 0.486**

HOLD: 10♥ J♠ Q♦ **Payback Ratio: 0.460**

The inclination to take the second option, to hold the ten, may be strong. However, that play decreases the number of cards you may draw from three to two, so the probability of pairing one of the high cards decreases. Holding the ten increases the probability of completing a straight.

The payback ratios for the two options are fairly close, but only the two high cards should be held. Notice that throwing the ten decreases, but does not eliminate, the possibility of getting a straight.

XII. FIVE LOW CARDS WITH THREE TO A FLUSH

Example: 2♥ 3♣ 5♠ 7♠ 10♠

Options:

HOLD 5♠ 7♠ 10♠ *** Payback Ratio: 0.312**

DISCARD ALL FIVE CARDS **Payback Ratio: 0.374**

Holding three cards to a flush, as you succumb to that basic urge to build upon the initial deal, proves to be the wrong play. The correct option is to discard all five cards.

* Machine A pays 5 to 1 for a flush; machine B pays 6 to 1. This increases the payback ratio to 0.354 on machine B, but does not change the decision to discard all five cards.

XIII. THREE CARDS TO A FLUSH, ONE HIGH CARD

Example: 4♠ 6♦ 7♣ 9♣ A♣

Options:

HOLD 7♣ 9♣ A♣ *** Payback Ratio: 0.427**

HOLD HIGH CARD: A♣ **Payback Ratio: 0.497**

Again, the option to try to complete a flush from three cards is the incorrect choice. Compare this situation to the previous example. Holding three cards to a flush, with one of the cards high, increases the payback ratio from 0.312 to 0.427, but the best option is to hold the single high card.

* Machine B yields a payback ratio of 0.467 if you take the first option. Holding the high card is still the correct play.

XIV. FOUR LOW CARDS TO A FLUSH, ONE HIGH CARD

Example: 2♣ 3♣ 6♣ 8♣ A♦

Options:

HOLD HIGH CARD: A♦ **Payback Ratio: 0.497**

HOLD: 2♣ 3♣ 6♣ 8♣ *** Payback Ratio: 0.958**

Trying to complete the flush is the correct choice. Holding the single high card instead would leave open possibilities for all winning combinations, but would not provide a high probability for a winning hand.

Variation:

If one or more of the four cards in the suit are high cards, the payback ratio increases:

2♣ 3♣ 6♣ J♣ **Payback Ratio: 1.029**

2♣ 3♣ J♣ K♣ **Payback Ratio: 1.090**

Although the probability of obtaining a flush has not increased, the additional possibility for a high pair has increased the payback ratio.

* Holding four to a flush on machine B, which pays 6 to 1 on a flush yields a payback ratio of 1.150.

XV. FOUR LOW CARDS TO A FLUSH, LOW PAIR

Example: 4♠ 4♦ 6♦ 9♦ 10♦

Options:

HOLD LOW PAIR: 4♠ 4♦ **Payback Ratio: 0.823**

HOLD: 4♦ 6♦ 9♦ 10♦ *** Payback Ratio: 0.958**

The correct option is to hold four cards to a flush. This option may seem obvious to the draw poker player, but not so obvious to an inexperienced video poker player. Choosing to go for the flush eliminates the possibility of obtaining any other winning combination. In short, it's a flush or nothing.

* Machine B pays 6 to 1 on a flush, so the payback ratio is 1.150; this reinforces the decision.

XVI. FOUR CARDS TO A FLUSH, HIGH PAIR

Example: 3♥ 7♥ 8♥ K♥ K♠

Options:

HOLD HIGH PAIR: K♥ K♠ **Payback Ratio: 1.554**

HOLD: 3♥ 7♥ 8♥ K♥ *** Payback Ratio: 1.029**

Example XV shows that holding four to a flush is a better option than holding a low pair. XVI shows that holding a *high* pair is a better option than holding four to a flush. This example points our that giving up a winning combination--in hopes of a higher winning hand--is usually a losing move.

* Machine B yields a payback ratio of 1.221 for the second option, but that still falls short of the 1.554 for holding the high pair.

XVII. THREE CARDS TO A STRAIGHT FLUSH, LOW PAIR

Example: 6♦ 6♥ 7♥ 8♥ 10♣

Options:

HOLD LOW PAIR: 6♦ 6♥ **Payback Ratio: 0.823**

HOLD: 6♥ 7♥ 8♥ *** Payback Ratio: 0.819**

The elusive straight flush is always a temptation. In this case, the two payback ratios are very close, but the conservative decision to hold the low pair is mathematically correct.

* Machine B gives a payback ratio of 0.764. The ratio is lower than for machine A, because machine B pays back 75 to 1 for a straight flush and machine A pays back 100 to 1. The choice remains the same.

GUIDELINES FOR PLAYING VIDEO POKER

This list of high potential hands was derived from the statistical data presented in this booklet. The hierarchy of combinations is based on their payback ratios. Compare your initial five cards with these options and select the first option on the list that describes your hand:

1. Winning combinations (two pair or better)
2. Four cards to a straight flush
3. High pair (jacks or better)
4. Four cards to a flush
5. Low pair (exception: 10, 10, J, Q, K--discard one 10)
6. Four cards to an open-ended straight
7. Four high cards (exception: three cards to a straight flush)
8. Three high cards (exception: two high cards to a flush-discard the third)
9. Two high cards
10. One high card

If your hand does not contain any of the combinations listed above, discard all five cards, and draw a new hand.

Here is an example of how to use this list. Suppose your initial draw is:

8♥ 9♣ 10♦ J♠ J♣

Your two options are to hold the open-ended straight:

8♥ 9♣ 10♦ J♠ or to hold the high pair: J♠ J♣

The correct choice is to hold the high pair (third in the list) instead of the open-ended straight (sixth in the list).

These guidelines are reproduced on your reference card, so you can tell at a glance what to hold.

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